



UNIVERSITI PUTRA MALAYSIA

**HJ. SAMURI SATE KAJANG OFFICE AUTOMATION USING
LOTUS NOTES APPLICATION**

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*This project paper is submitted as partial
fulfillment of the requirements in attaining
the degree of Masters of Science in
Information Technology*

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**FACULTY OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY
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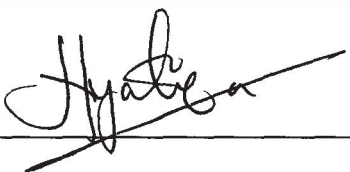


SUPERVISOR ENDORSEMENT AND CERTIFICATION

PROJECT PAPER

HJ. SAMURI SATE KAJANG OFFICE AUTOMATION USING LOTUS NOTES APPLICATION

This project paper was prepared by Vimala a/p Nadarajan as a partial fulfillment of the requirements for the degree of Masters of Science of Information Technology and hereby accepted and certified by

A handwritten signature in black ink, appearing to read 'Hyati', is written over a horizontal line.

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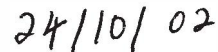
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DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Putra Malaysia or other Institutions.



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ABSTRACT

The advances of modern computer technology today have prompted offices to automate their office processing. As businesses continue to expand, the need to automate office processes increases. It is vital to incorporate computer technology to remain competitive.

The main object of this study is to create a working system capable of routing forms and saving data in the database. It is to collect information such as staff information and new branch addresses. It allows employees to request stationeries online where the processing and routing is done by the office system. It also has a discussion database that helps employees to communicate among themselves. The discussion database allows the placing of comments and notices for others to view.

The system was built using Lotus Notes version 5, a powerful workflow tool. Graphics were modified using Sierra Home SnapShot Express. The text was written using both the in-built word processor of Lotus Notes and Microsoft Word 2000.

This system simplifies work and allows for faster document processing. The system is kept open to allow future upgrades and modification.

ABSTRAK

Perkembangan teknologi moden dalam bidang perkomputeran telah menyebabkan kebanyakan syarikat dan perniagaan mengautomasikan pengurusan harian pejabat. Dengan perkembangan syarikat-syarikat sekian hari, keperluan mengautomasikan proses-proses pejabat kian meningkat. Ia telah menjadi satu kemestian untuk terus mampu bersaing di pasaran.

Objektif utama projek ini adalah untuk membina satu system yang mampu menghantar borang-borang dan menyimpan data di dalam pangkalan data. Sistem ini adalah untuk mengumpul maklumat seperti maklumat peribadi pekerja dan alamat-alamat cawangan baru. Ia membolehkan pekerja-pekerja mendapatkan alat-alat tulis dengan mengisi borang secara *online* di mana pemprosesan and penghantaran borang dijalankan secara automatik oleh sistem ini. Ia memiliki pangkalan perundingan yang membolehkan pekerja-pekerja berkomunikasi sesama sendiri. Maklum balas dan notis-notis boleh dipamerkan di sini sebagai pengumuman untuk yang lain.

Sistem ini dibina menggunakan aplikasi Lotus Notes versi 5. Grafik-grafik dimodifikasi dengan menggunakan Sierra Home SnapShot Express. Teks ditulis dengan menggunakan prosesor teks Lotus Notes dan Microsoft Word 2000.

Sistem ini memudahkan kerja-kerja pemprosesan and membolehkan dokumen-dokumen diproses dengan cepat. Sistem ini dibiarkan buka untuk peningkatan versi and modifikasi pada masa hadapan.

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1.0 Introduction

The computer technology has become a rapid growing entity, which reflects the paperless future that is already showing its grip in our lives. Most offices are now automated in their process to increase productivity. Automation allows work to be done quickly and effectively as well as reducing error.

Sate Kajang is a well-known Sate chain outlet. It is still small but has been steadily growing over the years. To help in the development and office processing, this Sate Kajang system was built. It is a simple system using Lotus Notes application. Its main feature would be the inventory for office equipment. Lotus Notes was used as it provides room for expansion. The Lotus Notes is one of the powerful developmental applications in the market today.

1.1 Definition of Workflow

Workflow is the process of routing a work to be completed by different individuals stage by stage. Routing is done through electronic mail.

1.2 Problem Definition

The current manual way of processing information is a tedious process. It takes up a lot of time and sometimes work is kept pending. Lots of papers are used. This increases the amount being spent as well as time. The employees of Sate Kajang are expected to fill stationery forms each time they require something even though it may only be a pencil. This amounts to a lot of wastage.

The employees do not have a proper way to make views or start discussions. Any messages are passed on verbally. This too, is an ineffective method as sometimes messages can be distorted when it is passed from one person to another.

Sate Kajang does not display branch addresses openly and this makes work slow, as employees have to keep looking into files to get the address. Not all employees are updated on new branch addresses.

1.3 Problem Solution

Once the problems are identified, it is easier to design a solution. The Sate Kajang Office Automation was designed to solve these problems. The Sate Kajang Office Automation System should be able to route forms and have pages where messages are clearly displayed.

It should contain an inventory form where the employees can request stationeries online. It should also have a form to display branch addresses as well as being able to collect information of new branch addresses.

It should have a discussion rooms that allows employees and managers to post view and start discussions. It should be efficient in helping employees in other departments to communicate.

1.4 Project objectives

The objectives of this project are:

1. To facilitate the inventory request
2. To provide a discussion room that is simple and easy to use.
3. To automize the office processing of Sate Kajang.
4. To provide simple web pages that can be used with an intranet.
5. To be able to cut down on paper, reduce errors and quicken processing time.
6. To improve effectiveness of the administration department.

1.5 Conclusion

It is desired that by this system, the administration department of Sate Kajang will be able to improve the quality of their work. The system has to be built under a time constraint but it has to achieve the objectives in order to be an acceptable part of Sate Kajang.

2.0 Introduction

For this literature review, the features of workflow and Lotus Notes are studied thoroughly to view the benefits of using Lotus Notes for the office automation of Sate Kajang.

2.1 Incorporate Workflow

A business process involves a series of stages in which ideas, paperwork, projects and so forth flow from one stage to another. At some point, some part of the process requires approval before they go on to the next stage. This movement from one stage to another is called *workflow*. Lotus Notes and Domino are particularly adept at business processes, or workflow.

It takes a workflow application to control a business process – making certain that steps are taken in correct order, directing different elements to the correct people, and steering the consequences of those decisions and approvals to their appropriate next step.

2.2 Strategies for Automating Workflow

When creating a workflow application, it is extremely important to set out a plan of the flow beforehand. As part of the planning process I need to know:

1. What item or object is traveling through the flow (an order, expense form, project and so on)

2. Who or what starts the action
3. The complete route the item follows, from start to finish
4. Who or what receives the workflow actions (by job function, not name or title)
5. What decisions need to be made along the route (conditions for proceeding, and what to do when those conditions are not met)

In a workflow application, I have to handle moving documents from one user to another or from one database to another, assigning people to tasks or assigning resources to accomplish the tasks, share information, and send reminders when the application slows or halts. Workflow strategies are the methods you employ to accomplish this:

1. To move documents, you mail them to next user or database. Alternatively leave the documents in a certain location, and notify the user that documents are ready for the next step by mailing a reminder with a document link.
2. To track the status of a document's process, create status-type fields and report to show the current status. Don't overlook the importance of reports to track outstanding items.
3. Use security measures at the database, document, and field levels to control that approve the document before passing it along. Define responsibilities by determining who can read for review and who can edit a document.

Starting with Release 5.0, there is a third piece of the Notes/Domino software package – the Domino Designer. Previously, all application development took place inside the Notes client. Domino Designer is an add-on to the Notes client, and it provides a separate development environment in which to design and write Domino applications. By separating the design and user tools, Lotus optimized the design for its audience.

2.31 History and Evolution

Previously, Notes and Domino worked only with each other. The server (known prior to Release 4.6 as the Notes Server) could only serve data to Notes clients, and the Notes client could only access Notes data either locally or on a Notes server. This made sense when the computer networks were small and isolated from each other.

However, the surge of popularity of the Internet (fueled largely by the advent of the World Wide Web in the 90s) has changed the playing field. We now have easy access to a worldwide network of computers, and that access is rapidly changing the way we work, shop and play, and the way business interact with their customers and business partners. For many of us, email is now as indispensable as the telephone, the WWW is more convenient than the local mall, and we get more news from our computers than we do from newspapers, magazines or television.

Lotus has responded to this situation in a number of ways. First, they began with Release 4.0, to incorporate the major Internet standards into both the client and the server.

2.3 What are Lotus Notes and Domino?

Lotus Notes and Domino are a set of programs designed to enable groups of people to work together efficiently. The original and still premier 'groupware' product, they are now also a powerful set of tools for gathering, organizing and disseminating information. They are an email system, a system of discussion forums, an information repository, a group project tracking system, a business process automation system. As such applications need to be flexible and customizable, Notes and Domino include a powerful set of application development tools. The most prominent of these is Domino Designer, with which the system was built with.

Notes and Domino, combined, constitute a client/server program. Lotus Notes is the client program. It resides in the user's computer and communicates with the server, retrieving data, presenting the data to the user, and sending newly created data to the server.

Lotus Domino is the server program. It resides on a separate computer. It is accessible by LAN, WAN or modem to all users in the group. The Domino server is the custodian of Notes databases. It permits or denies the users access to its databases according to access control lists that it maintains for each database. One user can add content to a database, another user can only read the content and a third user might be denied access altogether.

Second, as of Release 4.5, they renamed the server (from 'Notes Server' to 'Domino Server') to signal its new Internet functionality. Third, they began marketing Domino as not just the premier groupware product, but as a great Internet application server as well. Finally, the most important part, the application developer has streamlined the process of developing Domino/Notes/Web applications.

The net result of all this is that, as of the current release (Release 5.0), the notes client and the Domino server are no longer exclusive partners. They now have different functions entirely independent of each other, in that Notes can function just fine without Domino and Domino can serve data to all sorts of clients other than Notes.

The Notes client can retrieve mail from POP3 and IMAP mail servers and deliver it directly to SMTP server. It can also communicate directly with Web, News, FTP, Gopher, LDAP, and Finger servers. Finally, it is a Personal Information Manager with address book, email, calendar, task management, and information management features. Some people use it even though they don't have access to Domino servers.

The Domino server is a Web server, a POP3 mail server an IMAP mail server, an LDAP directory server, an NNTP News server and a Notes Server. It gives access not only to Notes databases residing on itself, but also to files in its file system and a wide array of non-Notes databases residing on the other computers.

The developer can develop Notes database using Notes' propriety tools – Notes Formula Language and LotusScript (Lotus's version of BASIC) – or non-propriety tools such as HTML 4.0, Java and JavaScript. Domino supports CORBA/IIOP, so the developer can develop true client/server Domino applications for non-Notes clients. Furthermore, Domino provides both propriety and third-party tools for connecting the applications to non-Notes data sources.

2.32 The R5 Product Line

To summarize, the R5 product line includes three basic products: the Domino server, the Notes client and the Domino Designer Application development environment, which is an add-on to the Notes client.

There are actually several Domino servers, which offer different levels of functionality.

- 1. Domino Mail Server** – This low-end server offer basic email and collaboration services.
- 2. Domino Application Server** – This is the standard Domino Server, similar to the Domino server of earlier releases. It includes the features of the Domino mail server, to which it adds web application services and connectivity to data sources external to Domino.

- 3. Domino Enterprise Server-** This includes all the capabilities of the other servers and adds server clustering for increase data availability.

There is only one notes client but it have two possible add-on functions. The first, Domino Designer, is the application development interface. The other Domino Administrator, is yet another set of optional screens, where Domino System administrator maintain Domino Server and Notes client.

2.4 Hardware

To develop Domino application you need a Pentium class PC running windows 95 or higher, or a McIntosh power PC running PC system 8.5.1. If the PC runs Windows 95 or windows 98, it needs at least 8MB RAM (16MB recommended). If it runs Windows NT, it needs at least 16MB RAM (32MB recommended). You also need at least 70MB (236MB recommended) free disk space for the notes and Domino Designer program and data files. The underlying operating system should include any patches that have been released for it.

To develop applications that can be accessed through a web browser the computer also needs to be running the TCP/IP Protocol stack. This means that the computer needs either a LAN adapter installed in it or a modem installed in or attached to it because the TCP/IP protocol stack must buy to a LAN or modem driver or it won't install.

Most of the functionality that will be developed can be tested right on the Notes workstation. However, some Notes function works differently on a Domino server than they do on a Notes workstation.

A bare bones Domino server can run on a computer of the same specification as for Domino Designer with two exceptions. First, Domino server won't run on McIntosh. Second, it requires a minimum of 48MB RAM (96MB recommended) if it is running under windows 98 or higher, or Windows NT, and a minimum of 64MB (128MB recommended) if it is running under any other platforms. You will also need 300MB free disk space to hold the program and minimal data files. Lotus actually recommends 750MB and up for a production server.

If you have enough RAM on your windows workstation you can actually install both Domino server and Domino Designer on it and run them simultaneously. The trick to doing this is (besides having lots of RAM and disk space) is to make sure that the two programs do not share the same data directory or notes .ini files. As long as different data directories and Notes .ini files, Domino server and Domino Designer act as though they are on two different computers, connected by a LAN. To set the computer to run this way, install a Domino server, and then install Notes and Domino Designer. Specify different program directories if you have ample disk space, or the same program directory if the disk space is tight. Specify different data directories in either case.